

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-13 are currently pending. Claims 14 and 15 are hereby added. Claims 1 and 13 are independent and are hereby amended. No new matter has been introduced. Support for this amendment is provided throughout the Specification as originally filed.

Changes to the claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. REJECTIONS UNDER 35 U.S.C. §§102 AND 103

Claims 1-3 and 5-13 were rejected under 35 U.S.C. §102 as allegedly anticipated by or in the alternative under 35 U.S.C. 103 as being obvious over U.S. Patent Application Publication 2002/0020564 of Fang, et al. ("Fang") now U.S. Patent No. 6,607,835. **NOTE:** For consistency with the Office Action, Applicant will continue to cite to paragraph numbers in Publication No. 2002/0020564;

Claim 4 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Fang in view of U.S. Patent No. 5,051,112 to Keshavan et al. (“Keshavan”);

Claims 1-3 and 5-13 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Fang in view of U.S. Patent No. 6,227,318 to Siracki;

Claim 4 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Fang and Siracki and further in view of Keshavan;

Claims 1-3, 5-7, and 10-12 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Siracki; and

Claims 8-9, and 13 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Siracki in view of Fang.

Applicant respectfully traverses these rejections.

Independent claim 1 recites, *inter alia*:

“(1) providing a plurality of fibres, each fibre having a core comprising a mixture of carbide particles and particulate binder metal, and a coating comprising a mass of diamond or cubic born nitride (CBN) particles or precursor for said diamond or CBN particles and optionally a second phase,

...

(5) subjecting the layer and substrate to elevated temperature and pressure conditions at which the diamond or cubic born nitride (CBN) particles or precursor for said diamond or CBN are crystallographically stable to produce PCD from the diamond particles or PCBN from the CBN particles.”

The Office Action interprets PCD, PCBN as including diamond and CBN particles and elevated temperature and pressure conditions as including hot isostatic pressing. Applicant disagrees with the interpretation of these features. However, Applicant has amended the claims to make clear that which was inherent. Applicant has added claims to characterize the elevated

temperature and pressure so as to avoid the interpretation in the Office Action (see Paragraph III below).

Claim 1 is patentable over the cited references because those references do not teach or suggest the present method, which starts with diamond or CBN particles or precursors thereof in a green state product and produces PCD or PCBN, respectively, in the final step.

First Argument:

The method as recited in claim 1 includes the steps of, “(1) providing a plurality of fibres, each fibre having a core comprising a mixture of carbide particles and particulate binder metal, and a coating comprising a mass of diamond or cubic born nitride (CBN) particles or precursor for said diamond or CBN particles and optionally a second phase . . . (5) subjecting the layer and substrate to elevated temperature and pressure conditions at which the diamond or cubic born nitride (CBN) particles or precursor for said diamond or CBN particles are crystallographically stable to produce PCD from the diamond particles or PCBN from the CBN particles.”

Thus, the method, as claimed in claim 1, starts with diamond or CBN particles or precursors thereof and produces a green state product and then converts these diamond and CBN particles in the green state product to PCD and PCBN, respectively, in the final step. Publ. App. par. [0016]. Claim 1 unambiguously recites the diamond and CBN in the green state product are not in polycrystalline form. That is, the diamond and CBN are in individual discrete form, and the polycrystalline form is only created in the final step.

The present invention as claimed in claim 1 is distinguishable from Fang because Fang does not start with individual diamond or CBN particles, produce a green state product from these particles, and then convert them under diamond or CBN synthesis conditions to PCD or PCBN.

Similar considerations apply to Siracki. As pointed out in the Office Action, the relevant disclosure is to be found in Siracki, cols. 12 and 13. Siracki, however, makes clear the method uses polycrystalline diamond (PCD) or polycrystalline cubic boron nitride (PCBN) in the tape, which is then placed on a substrate for high temperature/high pressure bonding. Siracki, col. 12, lines 60 and 61; col. 13, lines 1-3; and col. 13, lines 19-21. Nowhere in columns 12 and 13, or elsewhere in Siracki, is the suggestion that the tape should contain individual diamond or CBN particles, which are then converted to PCD or PCBN in a subsequent bonding step. In contrast, claim 1 of the present application clearly recites a process that starts with diamond or CBN particles (or precursors thereof), use elevated pressure and temperature and results in PCD or PCBN.

The Office Action attempts to find such a disclosure by pointing to Siracki, col. 10, lines 47-49. This passage, however, is not dealing with a tape that is subjected to a sintering step. Indeed, this portion of Siracki is dealing with the nature of the material for the layer of superhard material for the cutting insert. That superhard material can be diamond, cubic boron nitride, PCD, or PCBN.

Keshavan does not add the elements missing from Fang and Siracki.

Second Argument:

Fang does not disclose the use of diamond or cubic boron nitride. Fang only teaches the hard phase can be PCD or PCBN. To overcome this gap in the teaching of Fang, the Office Action in par. (1) [at page 3], and in par. (3) [at page 5], states:

"It is to be noted that Fang et al. states that the hard phase can be as PCD, PCBN and the like . . . With this in mind, Fang et al. states that the particles can be PCD, PCBN or the like and the limitation 'the like' would suggest and thus make it obvious to the skilled artisan that regular (not polycrystalline) diamond or boron nitride can be used and these would be unsintered particles."

(OA at page. 5) (italics in original, emphasis added).

The Office Action erroneously attempts to make definite the indefinite phrase, "and the like." That is, the Office Action unreasonably presumes knowledge of the skilled artisan to understand the phrase "the like" to encompass "regular (not polycrystalline) diamond or boron nitride can be used" as a substitute for PCD or PCBN.

The Office Action incorrectly interprets the language as definite by presuming a skilled artisan would understand what elements are encompassed within the phrase "or the like." The phrase "or the like" is indefinite because it does not provide any scope to the elements being disclosed. That is, a skilled artisan cannot determine what elements are encompassed by the phrase "the like" and, therefore, any attempt to expand that which is explicitly stated is sheer speculation.

Applicant directs attention to MPEP 706.03(d), which states:

"7.34.09 Indefinite Claim Language: "Or The Like"

. . . the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d)." (emphasis added).

That is, the phrase “or the like” is indefinite because the scope of the elements cannot be determined. While the indefiniteness of the phrase “or the like” in the MPEP is directed toward claim language, that phrase does not suddenly become definite by simply being transported to the written description. Hence, the scope of “or the like” cannot be determined, and, therefore, the Office Action errs by presuming to know what a skilled artisan would understand “or the like” to mean in relation to Fang’s disclosed PCD and PCBN.

For reasons similar or somewhat similar to those described above with regard to independent claim 1, independent claim 13 is also believed to be patentable.

III. NEW CLAIMS

New claims 14 and 15 depend from independent claims 1 and 13, respectively, are believed patentable for at least the same reasons. Moreover, claims 14 and 15 add a characterization of the elevated temperature and pressure recited in claims 1 and 13, respectively.

Claim 14 is representative and recites, *inter alia*:

“... the elevated temperature is in the range of approximately 1300 to 1700 degrees Centigrade and the elevated pressure is in the range of approximately 4 to 8 giga-Pascals (GPa).”

The Office Action at page 4, citing Fang, states “the instant claims reads on hot isostatic pressing since no clear temperatures or pressures are defined . . . the reference teachings reads on the claims as broadly written.” (emphasis added). First, the Office Action errs in the “broad” construction of Fang’s hot isostatic pressing. Hot isostatic pressing conditions are simply not suitable to produce PCD from diamond and PCBN from CBN particles. Second, dependent claim 14 quantifies the elevated and temperature conditions as being “in the range of

approximately 1300 to 1700 degrees Centigrade and the elevated pressure is in the range of approximately 4 to 8 giga-Pascals (GPa).” Publ. App. par. [0024]. Such conditions are clearly not “hot isostatic pressing” conditions, but are diamond and CBN synthesis conditions, the conditions necessary to produce PCD from diamond and PCBN from CBN. The as-filed specification at Publ. App. par. [0024] discusses these conditions in the context of diamond and PCD and it is well known that the same range of temperature and pressure conditions is applicable to CBN and PCBN.

IV. DEPENDENT CLAIMS

The other claims are dependent from one of the claims discussed above and are therefore believed patentable for at least the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

CONCLUSION

Claims 1-15 are in condition for allowance. In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited reference, or references, it is respectfully requested that the Examiner specifically indicate those portions of the reference, or references, providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Respectfully submitted,

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